



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants: J.G. BEDNORZ ET AL. : Date: March , 1988  
Filed: 05/22/87 : Serial No.: 06/053,307  
Group Art Unit: 115 : Examiner: Dennis Albrecht  
FOR: NEW SUPERCONDUCTIVE COMPOUNDS HAVING HIGH TRANSITION TEMPERATURE,  
AND METHODS FOR THEIR USE AND PREPARATION

DECLARATION OF ALEXIS P. MALOZEMOFF  
WITH RESPECT TO HIGH T<sub>c</sub> SUPERCONDUCTIVITY

Commissioner of Patents and Trademarks  
Washington, D.C. 20231

Sir:

I, Alexis P. Malozemoff, hereby declare and say that:

1. I have a PhD from Stanford University and was a Senior Manager in the Physical Sciences Department at the Thomas J. Watson Research Center of IBM Corporation at Yorktown, N.Y. in the fall of 1986. At that time, Chang C. Tsuei reported to me while Richard Greene and Sung Il Park reported to Chang Tsuei. I had general responsibility for a research program in superconductivity and amorphous materials.

2. In approximately September - October 1986, I was made aware of the pioneering work in superconductivity done by Bednorz and Mueller in Zurich. I had seen an activity report prepared by the Zurich Research lab of IBM Corporation, which detailed that work and the measurements that Bednorz and Mueller had made on Ba-La-Cu-O ceramic superconductors. In response, I discussed specific heat measurements that could be made on these superconducting materials to complement the work being done at Zurich by Bednorz and Mueller. My discussion was with Richard Greene whom I encouraged to be involved in this technical activity.

3. On or about November 15, 1986, Richard Greene and I traveled to Baltimore for a Magnetism conference. During our travel to Baltimore, we discussed Greene's ongoing experiments on high T<sub>c</sub> superconducting samples

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which he said had been received from Bednorz and Mueller. Specifically, we discussed Greene's preliminary data on specific heat measurements. Richard Greene reported to me that the diamagnetic signal was present but very small. I encouraged him to continue with his measurements with the anticipation that he might be able to present a paper at the Materials Research Society meeting that was scheduled for December, 1986.

4. I recall Chang Tsuei telling me his measurements of resistivity versus temperature on the superconducting samples of Ba-La-Cu-Oxides which had been obtained from Zurich. These measurements were done at the aforementioned Research Center and Tsuei reported that his measurements confirmed earlier measurements of Bednorz and Mueller and were consistent with the results published by Bednorz and Mueller in Z. Phys. B-Condensed Matter 64, pp. 189-193 (1986). My recollection of the exact date Chang Tsuei told me of his resistivity versus temperature measurements is not clear. However, I do know that he told me in either November or December of 1986. To the best of my recollection, Tsuei's discussion with me was shortly after the Materials Research Society meeting in Boston the first week of December, 1986.

5. I do have a strong recollection of the work of Richard Greene on the specific heat measurements of these samples and of his measurements of resistivity versus temperature in the presence of a magnetic field. Greene's work at the Research Center started soon after he received the superconducting samples in October, 1986 and continued on a daily basis throughout the remainder of 1986 and into 1987. He discussed with me and showed me data concerning these measurements, which indicated to me that a portion of the samples was superconducting. During this time he told me that he also communicated regularly with Bednorz and Mueller in Zurich to inform them of his work and to coordinate his efforts with those of Bednorz and Mueller. He said that he received technical guidance and support from Bednorz and Mueller and worked in complete collaboration with these individuals.

6. I further declare that all statements made hereinabove are of my own knowledge and are true and that all statements made on information and belief are believed by me to be true. Further, I declare that these statements were made in the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under

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Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of a Patent Application or any patent issuing thereon.

Alexis P. Malozemoff  
ALEXIS P. MALOZEMOFF

DATE: Mar. 30, 1988